

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Title: ASSIST ROD AND BASKET ASSEMBLY
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First Named Inventor: Click
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Examiner: Le, Mark T
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APPLICANT'S APPEAL BRIEF

REAL PARTY IN INTEREST

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RELATED APPEALS AND INTERFERENCES

None

STATUS OF CLAIMS

Claims 1 – 9 stand rejected.

Claims 10 – 16 stand withdrawn from consideration.

Claims 1 – 9 are the subject of this appeal.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

The following general description precedes a discussion of the claim limitations.

This invention relates to assist rod assemblies, comprising front and rear baskets, for throwing railway switch points. The baskets of the invention play a dual role, taking up lost motion and actuating the assist rod.

The front basket (Page 6, Line 35 to Page 7, Line 15; Figs. 6 – 8; 100) includes an upwardly extending head portion (Page 6, Line 35 to Page 7, Line 5; Figs. 6 – 8; 116) adapted to link to a torsional assist rod and to rotate the assist rod when the basket undergoes lateral movement (transverse to the running rails) as a result of the switch being thrown.

The head of the basket comprises a bore (Page 7, Lines 6 to 15; Figs. 6 – 8; 118) for receiving a pin (Page 7, Lines 6 to 15; Figs. 6 – 8; 120) for rotation in the bore. A pair of link arms (Page 7, Lines 6 to 15; Figs. 6 – 8; 122, 124) extend from the ends of the pin. The link arms engage the assist rod to cause it to rotate when the basket undergoes lateral movement transverse to the assist rod. The assist rod is separately mounted for rotation in a sleeve on a support clip. A threaded connector rod slidably extends through the basket. Movement of the basket in relation to the connector rod is limited by nuts threaded onto the rod at each end of the basket. Adjustment of the nuts serves to adjust the amount of lost motion to be taken up by the basket before actuating the connector rod

by abutment of the basket with the nuts (Page 6, Line 35 to Page 7, Line 5; Figs. 6 – 8; 106).

Claim 1 in issue reads:

Claim 1. A railroad switch (Figs. 3 – 12) comprising:

a lost motion basket housing (Page 6, Line 35 to Page 7, Line 5; Figs. 6 – 8; 106) having an opening in said housing, said opening travelling laterally through said housing, along a longitudinal axis, for allowing unimpeded lateral displacement of a rod or bar (Page 6, Line 35 to Page 7, Line 5; Figs. 6 – 8; 102) therethrough;

at least one abutment (Page 6, Line 35 to Page 7, Line 5; Figs. 6 – 8; 108, 110) in said opening for limiting lateral displacement through said opening of a surface associated with said rod or bar; and,

means (Page 7, Lines 6 – 14; Fig. 4; 122, 126) for rotatably retaining an arm associated with said housing, said means having an axis of rotation;

wherein said axis of rotation does not intersect said longitudinal axis.

Claim 1 therefore defines a lost motion basket housing including retention means, the means further defined by the following limitations:

- retains an arm – limitation (a); and
- rotatable retention of the arm – limitation (b).

Claims 2 – 4 depend from claim 1 and are found in the Claims Appendix.

Claim 5 addresses the embodiment of the invention with a distinct head portion and reads:

Claim 5. A railroad switch comprising:

a lost motion basket housing (Page 6, Line 35 to Page 7, Line 5; Figs. 6 – 8; 106) having an opening travelling laterally therethrough for allowing unimpeded lateral displacement of a rod or bar (Page 6, Line 35 to Page 7, Line 5; Figs. 6 – 8; 102) therethrough along an opening axis, at least one abutment (Page 6, Line 35 to Page 7, Line 5; Figs. 6 – 8; 108, 110) in said opening for limiting lateral displacement through said opening of a surface associated with said rod or bar member and a head portion (Page 6, Line 35 to Page 7, Line 5; Figs. 6 – 8; 116), and a bore (Page 7, Lines 6 to 15; Figs. 6 – 8; 118) in said head portion, said bore having an axis that is transverse to and does not intersect said opening axis, said bore receiving a pin (Page 7, Lines 6 to 15; Figs. 6 – 8; 120) for rotation therein.

Claim 5 therefore defines a lost motion basket housing including a head portion and a bore in the head portion, the bore further defined by the limitation that it receives a pin for rotation therein – limitation (a).

Claim 6 is dependent on claim 5, and defines a railroad switch which further comprises at least one torsion arm (Page 7, Lines 6 to 15; Figs. 6 – 8; 122, 124) retained on the pin.

Claim 7 is dependent on claim 6 and contains the further limitation that the torsion arm comprises an elongated slot (Page 7, Lines 22 to 30; Figs. 6 – 8; 125) and one end of the pin extends through the elongated slot.

Claim 8 depends from any of claims 5, 6, or 7, defining a railroad switch further comprising attachment points on the housing for securing a switch rod assembly thereto.

Claim 9 depends from claim 6 or 7 and specifies that one end of the torsion arm is rigidly secured to an assist rod (Page 7, Lines 31 to 35; Figs. 6 – 8).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether Claims 1 – 6, 8/5 and 8/6 are unpatentable under 35 USC 102(b) over U.S. Patent No. 1,795,413 to Stiles (“Stiles”).

Whether Claims 7, 8/7 and 9 are unpatentable under 35 USC 103(a) over Stiles in view of U.S. Patent No. 2,077,620 to Dicke (“Dicke”).

ARGUMENT

The majority of the examiner’s rejections are based on Stiles, a copy of which is included in its entirety in the Cited Art Appendix.

Stiles describes a throw rod connector for a railway track switch, by which the movement of a switch machine is converted to movement of a switch point. The object of Stiles’ invention is to provide a connector which is protected against contamination or interference from foreign materials, without interfering with the operation of the switch (see Stiles, p.1, lines 21 – 32). Stiles discloses an internal structure similar to many other

prior art baskets. However, Stiles' external structure is minimal and does not disclose or contemplate the features of the present invention.

According to Stiles, the throw rod (2) is connected to tie bar (1) at one end, and to a switch machine or similar device at the other end (p. 1, lines 45 – 50). Specifically, the tie bar and throw rod are connected by means of a bracket member 5 “fixedly attached” to the tie bar (p.1, lines 56 – 58) or “rigidly connected to the tie bar” (p.2 lines 25 – 26). The attachment is illustrated as being made via a series of bolts (23) inserted through openings (22) in an extension (21) of the bracket, as best seen in Fig. 1. Movement of the throw rod under the force of a switch machine takes place strictly along the rod's longitudinal axis. The bracket, being rigidly connected to the tie bar, forces the tie bar to move parallel to and directly along with the bracket once the abutments (nuts 8) contact the inner abutment surfaces (10) of the bracket.

The specific limitations of the claims not met by Stiles will now be discussed in more detail, in which argument proceeds by groups of claims which will rely on common argument for all claims of each group.

Rejections under 35 USC 102(b) over U.S. Patent No. 1,795,413 to Stiles

Claims 1 – 4

This group consists of claim 1 and its dependent claims 2 – 4. The arguments will be directed to claim 1 but apply equally to the other dependent claims listed in this group.

The examiner claimed to be able to read all elements of claim 1 on Stiles as follows. The following numbering refers to elements labeled in Stiles as asserted by the examiner.

Claim 1. A railroad switch comprising:

a lost motion basket housing (comprising head portion 21 and lower portion 5) having an opening (7) in said housing, said opening travelling laterally through said housing, along a longitudinal axis, for allowing unimpeded lateral displacement of a rod or bar (2) therethrough;

at least one abutment (10) in said opening for limiting lateral displacement through said opening of a surface (9) associated with said rod or bar; and,

means (bore 22) for rotatably retaining an arm (tie bar 1) associated with said housing, said means having an axis of rotation;

wherein said axis of rotation does not intersect said longitudinal axis.

As noted earlier, the claim defines a lost motion basket housing including retention means, the means further defined by the following limitations:

- rotatably retains an arm – limitation (a);
- having an axis of rotation which does not intersect the longitudinal axis of the opening in the housing – limitation (b).

The limitations identifying the arm rotatably retained by the housing are significant. In citing and relying on Stiles to reject claim 1 and its depending claims, the examiner appears to misinterpret the interaction of several elements of Stiles in relation to the retention means defined by claim 1.

We turn to discuss more specifically the limitations of claim 1 that are not taught by Stiles.

1. Limitation (a) – “rotatably retaining an arm”

Limitation (a) requires that the basket housing rotatably retain an arm, distinct from the rod or bar which passes through the housing.

Limitation (a) requires that the arm be rotatably retained in a bore in the housing. The examiner contends that Stiles’ tie bar 1 is an arm rotatably retained by the extension 21 of the bracket 5, thereby satisfying that limitation.

As the examiner indicated, the use of a single bore 22 and bolt 23 would not prevent rotation of the housing about an axis of rotation through the bore 23. However, Stiles clearly indicates that the housing is “fixedly attached to the tie bar” 1 through bracket member 5 (page 1, lines 56-58). Stiles further discusses this connection on page 2 at lines 25-31, stating that “the bracket member has been described as being rigidly connected to the tie-bar”. Stiles then discusses using bolts 23 to secure the bracket 5 to the tie-bar. The term “rigid attachment” therefore precludes rotation or other movement of the bracket once it is attached to the tie-bar. The technical reasons for requiring a rigid attachment in Stiles are obvious: as rod 2 moves laterally, housing 5 moves laterally once the nuts 8 abut sleeves 14. The point of the fixed and rigid connection between the housing and the tie-bar is to move the tie-bar in the same lateral direction, with an essentially direct and parallel translation between the throw of the switch machine and movement of the switch rods. In contrast, the housing of the instant application contains means to translate lateral motion of the switch machine into rotational or torsional motion of the assist rods to the heel and front end switch rods of the switch. This is claimed in claim 1 as “means to rotatably retain an arm associated

with the housing”. The invention as claimed therefore performs a function that the invention disclosed by Stiles does not disclose and which would not be contemplated in the context of the Stiles invention.

Further, even if the housing disclosed by Stiles were attached by a single bolt through a single bore, the lateral orientation and movement of rod 2 inside the housing would actually prevent rotation of the housing. Rod 2 is capable only of movement in a straight line; rod 2 is contained snugly within bracket 5 so bracket 5 is likewise only capable of movement in an identical straight line. In contrast, the means through which the associated arm is rotatably retained in the present application is through pin 120, which is forced to rotate because of the lateral movement of the rod. The arrangement disclosed by Stiles is therefore not capable of rotation, as asserted by the examiner.

The examiner’s assertion that limitation (a) reads on Stiles is unfounded.

2. Limitation (b) – “having an axis of rotation which does not intersect the longitudinal axis of the opening in the housing”

As Stiles’ tie bar 1 is clearly not made to rotate, does not define an axis of rotation.

Summary comments for claim 1

The foregoing shows that on two points relating to means by which an arm is rotatably retained in the basket housing, which elements of the invention are defined, Stiles fails to anticipate claim 1.

As Stiles also expressly teaches away from the rotatable retention of an arm in a portion of the basket housing of the present invention which allows proper directional movement

of assist rods connected to the housing, the invention is also not obvious in view of Stiles and it represents a substantial contribution to the art.

It is submitted that claim 1 patentably distinguishes with Stiles. As claims 2 – 4 all depend from claim 1, it is submitted that those claims also patentably distinguish with Stiles.

Claim 5

Claim 5 claims a basket housing with a distinct head portion containing a bore, into which a pin is received for rotation.

The examiner claimed to be able to read all elements of claim 5 on Stiles as follows. The following numbering refers to elements labeled in Stiles as asserted by the examiner.

Claim 5. A railroad switch comprising:

a lost motion basket housing having an opening travelling laterally therethrough for allowing unimpeded lateral displacement of a rod or bar therethrough along an opening axis, at least one abutment (10) in said opening for limiting lateral displacement through said opening of a surface (9) associated with said rod or bar member (2) and a head portion (21), and a bore (22) in said head portion, said bore having an axis that is transverse to and does not intersect said opening axis, said bore receiving a pin (bolt 23) for rotation therein.

As noted earlier, claim 5 defines a lost motion basket housing including a head portion and a bore in the head portion, the bore further defined by the limitation that it receives a pin for rotation therein – “limitation (a)”.

The limitation identifying the pin being received in the bore for rotation therein is significant in relation to the examiner’s objections. In citing and relying on Stiles to reject claim 5 and its depending claims, the examiner appears to misinterpret the interaction of several elements of Stiles in relation to the bore in the housing defined by claim 5.

We turn to discuss more specifically the limitation of claim 5 that is not taught by Stiles.

Limitation (a) requires that the pin be received by a bore in the housing for rotation in the bore.

The use of a single bore 22 and bolt 23 would not prevent rotation of the housing about an axis of rotation through the bore 23. However, Stiles clearly indicates that the housing is “fixedly attached to the tie bar” 1 through bracket member 5 (page 1, lines 56-58). Stiles further discusses this connection on page 2 at lines 25-31, stating that “the bracket member has been described as being rigidly connected to the tie-bar”. The term “rigid attachment” therefore precludes rotation or other movement of the pin once it is placed into the extension 21 and tie bar 1. The rigid attachment in Stiles is necessary to proper functioning of the throw rod connector. Rod 2 must force the tie bar 1, through the extension 21 and bracket 5, to move laterally, in direct correlation to the movement of the rod. Again, the point of the fixed and rigid connection between the housing and the tie-bar is to move the tie-bar in the same lateral direction, with an essentially direct and parallel translation between the throw of the switch machine and movement of the switch rods. In contrast, the housing of the instant application contains means to

translate lateral motion of the switch machine into rotational or torsional motion of the assist rods to the heel and front end switch rods of the switch. This is claimed in claim 5 as “a bore receiving a pin for rotation”. Stiles’ pin (bolt 23) is not intended to rotate – it is intended to firmly, rigidly connect extension 21 to tie bar 1, such that lateral movement of the extension is properly translated to lateral movement of the tie bar.

In contrast, the present invention discloses a pin which is forced to rotate because of the movement of the throw rod, and therefore translates the lateral movement of the throw rod into rotational movement. The invention as claimed therefore performs a function that the invention disclosed by Stiles does not disclose and which would not be contemplated in the context of the Stiles invention.

The examiner’s assertion that limitation (a) reads on Stiles is unfounded.

Summary comments for claim 5

The foregoing shows that on the means by which a pin is retained within a bore in the head portion of the basket housing, which elements of the invention are defined, Stiles fails to anticipate claim 5.

As Stiles expressly teaches away from the rotatable retention of a pin in the basket housing of the present invention which allows proper directional movement of assist rods connected to the housing, the invention is also not obvious in view of Stiles and it represents a substantial contribution to the art.

It is submitted that claim 5 patentably distinguishes with Stiles.

Claim 6

Claim 6 depends from claim 5, and further recites at least one torsion arm retained on the pin.

Stiles does not disclose or discuss a torsion bar, and particularly does not disclose a torsion bar retained on the pin. Figure 3 best shows the bolt 23, which the examiner has asserted is the “pin” claimed in claim 5. The bolt 23 is clearly shown as retaining only the bracket member 5 and the tie bar 1. The tie bar 1 would not be understood to comprise a torsion bar, which is, as would be understood by a person skilled in the art, intended to actuate rotation of other elements of the switch. The tie bar 1 is intended solely to connect the ends of the switch points, as stated at page 1, lines 45ff, and to ensure that they move in unison. Stiles does not disclose a torsion bar retained by the pin, nor is there in fact a torsion bar elsewhere in the arrangement described.

The foregoing shows that on provision of or retention of a torsion bar on a pin retained within a bore in the head portion of the basket housing, which elements of the invention are defined, Stiles fails to anticipate claim 6.

The examiner’s assertion that claim 6 reads on Stiles is unfounded. It is submitted that claim 6 patentably distinguishes with Stiles.

Claims 8/5 and 8/6

The examiner has also asserted that claim 8 as it depends from claim 5 and claim 6 is anticipated by Stiles. Claim 8 recites the additional limitation of “attachment points on

said housing for securing a switch rod assembly thereto". Stiles does not appear to have any means to attach other assemblies to bracket member 5.

As Stiles does not disclose the elements of claim 5 or claim 6, claim 8/5 and 8/6 cannot be anticipated by Stiles. In addition, the elements defined in claim 8 are not of themselves disclosed by Stiles. The examiner's assertion that claim 8/5 and 8/6 read on Stiles is unfounded.

It is submitted that claims 8/5 and 8/6 patentably distinguish with Stiles.

Rejections under 35 USC 103(a) over U.S. Patent No. 1,795,413 in view of U.S. Patent No. 2,077,620

Claims 7 and 8/7

Claim 7 depends from claim 6, and further recites a torsion arm with an elongated slot, through which the rotatable pin extends. Claim 8/7 recites attachment points on the housing to secure a switch rod assembly. Both are ultimately dependent on claim 5.

The arguments set out above for claim 5 and for claim 6 are reiterated for this group insofar as the claims depend on claim 5 and claim 6.

The examiner has taken the position that it would have been obvious to use the elongated slots disclosed by Dicke to modify the connection between Stiles' tie bar 1 and head member 21 to facilitate adjustability. However, it is submitted that such an action would in fact not be obvious simply because the use of such slots would be unnecessary and redundant. Any adjustability of the bracket member 5 in relation to the switch machine

is provided by adjustment of the abutments about throw rod 2. Additional movement caused by elongated slots, rather than the small openings 22 shown in Stiles Fig. 2, would render the throw rod less effective, as it would be more difficult to predict exactly how much extra movement is happening each time the switch machine moves the throw rod.

The examiner's assertion that claim 7 reads on Stiles is unfounded.

The examiner has also asserted that claim 8 as it depends from claim 7 is anticipated by Stiles. Claim 8 contains the additional limitation of "attachment points on said housing for securing a switch rod assembly thereto". Stiles does not appear to have any means to attach other assemblies to bracket member 5.

It is submitted that the features claimed in claims 7 and 8/7 are therefore non-obvious over Stiles in view of Dicke.

Claim 9

This claim is ultimately dependent on claim 5 and is directed to the torsion rod recited in intervening claim 6, further reciting that one end of the torsion rod is rigidly secured to an assist rod.

The arguments set out above for claims 5 and 6 are reiterated for this group insofar as the claim depends on claims 5 and 6.

The examiner has taken the position that rods 11 of Dicke are readable as assist rods. However, Dicke clearly shows and describes elements 11 as brackets which are simply

The arguments set out above for claims 5 and 6 are reiterated for this group insofar as the claim depends on claims 5 and 6.

The examiner has taken the position that rods 11 of Dicke are readable as assist rods. However, Dicke clearly shows and describes elements 11 as brackets which are simply used to make a connection between the operating rods 9, 10 and the switch points 7, 8. As rods 9, 10 extend out underneath the points 7, 8 and under rails 5, it is difficult to simply connect the operating rods to the switch points. The brackets 11 are not in fact readable as assist rods, as asserted by the examiner.

It is submitted that the claimed feature is therefore non-obvious over Stiles in view of Dicke.

For all of the foregoing reasons, it is respectfully submitted that the claims as currently presented are allowable and that the examiner erred in rejecting them on the basis of Stiles or Stiles in view of Dicke.

Respectfully submitted,

A handwritten signature in cursive script that reads "Julia A. Thomas".

JULIA A. THOMAS

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CLAIMS APPENDIX

1. A railroad switch comprising:

a lost motion basket housing having an opening in said housing, said opening travelling laterally through said housing, along a longitudinal axis, for allowing unimpeded lateral displacement of a rod or bar therethrough;

at least one abutment in said opening for limiting lateral displacement through said opening of a surface associated with said rod or bar; and,

means for rotatably retaining an arm associated with said housing, said means having an axis of rotation;

wherein said axis of rotation does not intersect said longitudinal axis.

2. The railroad switch of claim 1, said housing further comprising a head portion and a lower portion, said means for rotatably retaining an arm being located on said head portion.
3. The railroad switch of claim 2 wherein said means for rotatably retaining an arm comprises a bore in said head portion, said bore being transverse in relation to said opening and being adapted to receive a pin for rotation in said bore and for connection to said arm.
4. The railroad switch of claim 3 wherein said lower portion comprises means for securing a rod to said housing.

5. A railroad switch comprising:

a lost motion basket housing having an opening travelling laterally therethrough for allowing unimpeded lateral displacement of a rod or bar therethrough along an opening axis, at least one abutment in said opening for limiting lateral displacement through said opening of a surface associated with said rod or bar member and a head portion, and a bore in said head portion, said bore having an axis that is transverse to and does not intersect said opening axis, said bore receiving a pin for rotation therein.

6. The railroad switch of claim 5 further comprising at least one torsion arm retained on said pin.
7. The railroad switch of claim 6 wherein said torsion arm comprises an elongated slot and one end of said pin extends through said elongated slot.
8. The railroad switch of claims 5, 6, or 7 further comprising attachment points on said housing for securing a switch rod assembly thereto.
9. The railroad switch of claim 6 or 7 wherein one end of said torsion arm is rigidly secured to an assist rod.

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EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None

CITED ART APPENDIX

U.S. Patent No. 1,795,413 to Stiles.

U.S. Patent No. 2,077,620 to Dicke.